

AVIATION WEEK

NOV. 24, 1947

INCORPORATING AVIATION AND AVIATION NEWS

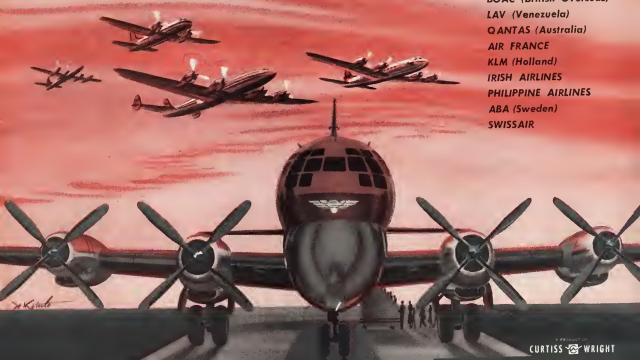
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 AVIATION WEEK, November 24, 1947



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AVIATION WEEK, November 24, 1947

THE AVIATION WEEK

LABOR PROBLEMS—Management in the aviation industry had notice that work of new problems on its labor front. From Capitol Hill came President Truman's appeal to a special session of Congress for "wage law" phase and wage controls and allocation of scarce industrial materials as a means of aiding Europe and coping with inflation. In Atlantic City another president, poppy Walter F. Reuther of the United Auto workers, Aircraft and Agricultural Implement Workers, took a firm grip on the UAW CIO which will have negotiations in the aircraft plants and airline maintenance shops.

Truman's program is primarily for Congress to deal with. But, it too, has a place in the labor picture. Free controls, siting and allocation of materials were advocated by the CIO. If they are not adopted organized labor will claim justification for a third round of wage increases.

It is true that Truman also asked for wage controls in these limited areas where prices would be controlled. This is meaningless. It appears to have been tacked into the 32-point program to give the appearance of balance.

Truman, for instance, asks "authority" to prevent wage increases which make it "impossible to maintain price ceilings." In the same breath, he admits "there would be few occasions for its use." The explanation is that Truman feels more wage increases can still come out of profits without raising prices.

WAGE BATTLE—Wage increases without price increases. We've heard that slogan before. In a lecture at Reuther's. Already we are hearing it again, with reverse English. Reuther now says that a 32-point price rollback is necessary as an alternative to a third round wage increase. This is no different from a wage increase without price increase.

Reuther, general boy of the CIO, stands today as hegemonist to Philip Murray, CIO president. He openly attacked Communism elements in the UAW-CIO and swept out of the leadership three international officers who had their support. Reuther forces control 15 of the 24 executive board members and 90 percent of the voting strength.

SECOND PHASE—Right now, the aviation industry is involved in the second phase of union activity. The first was unionization of the main body of workers—production workers in the plants and pilots and ground personnel in airlines.

The second consists largely of signing up the smaller groups, like office and clerical workers, supervision, technicians, and stewardesses, and riding other unions. This is when the union struggle for control of the industry. Manifestations of this, as well as of the

third phase, are union efforts to obtain more security for their members and to have more say in the management of the business. Major objective of the third phase is industry-wide bargaining and monopoly of labor.

During the next year, then, the aviation industry should expect increased activity in the struggle between the UAW-CIO and the International Association of Mechanics for control over workers in airplane and aircraft parts plants and airline mechanics and other ground personnel. Within the CIO, the UAW, aligned on the right, may try to squeeze the left wing dominated Transport Workers Union out of the aviation field.

REUTHER SWEEP—Reuther problems he has led the UAW-CIO of international which has hindered the union's activities. This can hardly be accomplished over night. But even so, there will be some ability of action and of purpose by the union. Reuther men are replacing Thomas-Alder-Leonard supporters in key spots, many of them in aviation.

R. J. Thomas, deposed vice president, will surrender directorship of the air line mechanics department, in which capacity he has been considered a failure. In his convenient report, Thomas tried to blame much by other unions and policies of the National Mediation Board, which he claimed consistently favor the AFL and IAM. Among the mud he tried was one by a union CIO union, the TWU, on the UAW's American Overseas Airlines membership. A new director with a dash out of congress will take over this business.

The staff of the UAW's aircraft department, headed by Reuther himself, will be considerably enlarged. When Reuther took it over last year his executive board, controlled by anti-Reuther men, cut his staff to only two men. During the war it had 87 men.

That's how factitious some a union's strength. Now Reuther says that it diminished and the Communists are out of control. But don't expect a "soft" UAW-CIO.

MANAGEMENT PROBLEMS—Reuther is a "rightist" only in comparison with a Communist. Actually, he holds Socialist beliefs, calls himself a Social Democrat.

The aviation industry will hear more about industry councils and industry-wide bargaining, profit, pensions, equal pay for equal work, actual wage, universal job descriptions. In other words, the UAW will seek a share in the management. Already, Reuther has undertaken a "comprehensive study" of "the future trend of the aircraft industry and its prospects in relation to employment, wages and union representation."

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NEWS DIGEST

DOMESTIC

Buzzing B-29 piloted by Capt. Warren Bruch completed the longest endurance flight without refueling on record by flying 22 hours and 15 minutes and covering a total distance of 4400 miles. The Superfort carried a crew of 13 and two observers.

North American Aetna, Inc. has completed arrangement for the leasing of five units of the government-owned Douglas Aircraft Co. plant at Long Beach, Calif. The lease is for five years at an annual rental of \$226,589.29 payable monthly in advance. The plant currently is used for the production of B-45 bomber highspeed bombers, and contains 2740 acres.

Smoketaker Corp. has purchased for \$1,782,000 the government-owned plant it operated during the war at South Bend, Ind. The sale is subject to a return to the government within a specified time in the event of a national emergency.

Captain Albert B. Seales, formerly director of the Navy air missile test center at Point Mugu, Calif., has been appointed director of technical issues for the pipelines plant division of Pan-Canal Fuels and Airplane Corp. He will headquarter in Farmingdale, L. I., New York.

FINANCIAL

Sabena (Belgian Air Lines) reports a net profit of \$2,842,964 for the 1946 calendar year. A total dividend of 8 percent was declared during the year on par/par preferred stock which is held equally by the Belgian government and private interests. In addition, a 5 percent dividend of \$1.17 per share was declared on 52,000 shares of no-par common stock.

Howard Hughes received refunds and credits from the U. S. Treasury totaling \$455,972 for overpayment of his personal income taxes for 1945-46.

DISCUSSION

British Overseas Airways Corp. has formed a new airline in conjunction with Hongkong, China commercial interests to operate air routes between Hongkong, Canton and Shanghai.

Australian Air Flies between Perth, Western Australia, Queensland and Thomson have increased 20 percent due to increased wages and costs. According to the minister for civil aviation, Australian air fares are still among the lowest in the world averaging 47 cents per passenger mile in comparison with 51 cents in the U.S. and 6 cents in Canada.

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Vol 47 No 23

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LaMurre (From News)



Meyers (From News)



Bell (IN Photo)

AAF Subcontracting Firm Owned By Gen. Meyers, Testimony Shows

Senate subcommittee also hears Wright Field general held aviation stocks while handling procurement; Air Force shelved probe.

Mr. Gen. Bennett E. Meyers and Army Air Force policyholders found the spotlight before the Senate War Investigating Subcommittee last week. Highlights of evidence presented the group was:

• Meyers held more than \$15,000 in aviation stocks in 1947 while chief of staff of the Air National Command at Wright Field. It proved that would be a violation of U. S. Criminal Code prohibiting government procurement officials from having financial interests of any type in firms with which they deal as government representatives.

Meyers readily in two years' improvement of \$2,000 line.

AAF failed to investigate reports during the same year of aviation stockholdings by Wright Field procurement officials and launched a public relations project to "subvert" the news.

• Aviation Electric Corp. of Dayton, was set up by Meyers in 1940 as a "joint firm" for the general accounting to Elmer LaMurre, 35, who reported

he was a \$35-a-week accountant at Douglas Aircraft when Meyers (LaMurre's wife had been Meyers' secretary) introduced him into the firm "to watch after his (Meyers) interests."

LaMurre stood as president and treasurer of the company. Although LaMurre was listed on official records as the firm's owner, he stated that Meyers actually owned 100 percent of the stock.

In 1940, a \$152,000 subcontract for electrical assemblies was obtained from Bell Aircraft for Avionics Electric through Meyers' efforts. LaMurre testified.

Laurence Bell, 31, Elmer's brother-in-law of North American Aviation Corp., and Gay Vaughn of Cavanaugh-Wright, LaMurre and, were among the contacts Meyers mentioned to him would secure the company business.

Company engineers set a price of \$13 per unit on the Bell contract, LaMurre reported, but Meyers boosted it to \$44.

With the Bell contract accounting for all but \$2,000 of his \$154,000 gross business, the company in 1941 made

significant profits to repay a \$16,800 loan from Meyers and pay him another \$50,000. The \$16,800 additional payment to Meyers, LaMurre said, was received in his (LaMurre's) salary. LaMurre set his actual 1941 income from the firm at less than \$1,000.

• A detailed letter (June, 1945) concerning charges against Meyers, requested that he be investigated, was prepared by the office of former AAF commanding general, H. H. Arnold.

The letter, sent to the FBI by an anonymous source explained, "I am in the AAF at the present time and do not care to aid in the investigations which would be my lot if my name is known."

Officially dropping the version on what he termed "the first phase"—instead of \$44 million in contracts in planemaker Howard Hughes, whom Meyers' sister, Mrs. Elmer Ferguson (R. M. M. M.) shifted into "the second phase" of the group's profile of wartime aircraft procurement with Meyers in the target.

Most of the witnesses who presided before the War Investigating Subcommittee are well known in aviation.

Among them were:

• Lawrence Bell, Bell Aircraft president, who testified on Meyers' recommendations in the fall of 1946 that he subcontract on a French (later taken over by the British) contract with Avionics Electric.

Meyers, Bell reported, said only that the firm was run by "friends of his" gave no indication that Meyers

might be the answer. Bell placed the semiconductor with a system Altair by the rear of the mid and classified a total of \$1,330,000 in semiconductor to the firm during the war.

• **May Gen. Oliver F. Echols**, wartime Chief of Wright Field, declared that he had "laid no restraints" and that it never occurred to him that Maynor might have stolen stockholdings, although testimony showed that such restraints were widespread in civilian company circles and in AAF's public affairs division. Early in 1940, Echols admitted being reluctant of Meyers' interest "in a Dayton electric company." He also discussed the company's role in the construction, and left Wright Field late in the war "with the definite impression" that he had.

• **Col. William Nichols**, AAF public relations officer in 1945, proposed to his chief, Maj. Gen. George Stutzman, that the public relations staff "gather information" to "assist" various high ranking military holding large blocks of aircraft stockholdings. Nichols replied that was not any fault of his. For comparison asked why he did not refer the "rumor" to the air inspector's office for investigation.

Stutzman, at the direction of Arnold, sent a memorandum to his top procurement officers, including Meyers, requesting reports of their aviation stockholdings. "Certain reasons have been furnished which tend to indicate more trouble within the AAF and its joint confidence in the high command," the memo began. "Positive steps are to be taken which, while not calling attention to these rumors, are assuming a defensive attitude to counteract them." Stutzman's answer said that "this subject is by no means to be regarded as anything in the nature of an inventory problem" and "it will be used only with the greatest discretion."

Meyers reply showed that he held over 200 shares of General Electric, as of Feb. 5, 1941. Committee reports gave General Electric, director of the FBI, disclosed that he held over 1,700 additional shares of aviation stock, valued at over \$17,000 on that date which was later transferred as a "gift" to his wife and listed under her maiden name, Dr. Rex Chance.

• **Col. Jacob Swart**, Secretary of Air Staff and Arnold's assistant, was unable to "resolve anything whatever" about the anonymous letter offering for an edition of Meyers' "The Question of 'Six' over Swart's initials" showed the letter to a page one line. Swart told the subcommittee the letter did not merit an investigation "since the person who wrote it indicated the individual himself was in the air." Although quickly shelved, head of the ITD was fraudulently deflected. It came within Justice Department's previous Marick trial, an

investigation definitely would have been made on the basis of the letter. A wartime War Navy Justice agreement required that investigations of military personnel be left to the service.

• **May Gen. James Hens**, an inspector, called the letter "the most glibly" agreed with Swart that it did not warrant an investigation. James said I have "the slightest idea" why it was not referred to his office. The air inspector did not see the letter until after it was requested by the Senate subcommittee in May. The subcommittee had to appear to Secretary of Air W. Stuart Birmingham to submit the letter from Hens, which disclosed that it was after getting questions from it.

Airlines Ground DC-6 For Accessory Changes

Temporary grounding of the Douglas DC-6 for the second time within a few night last week, triggered off intensive investigation of the plane's faults and revealed that the crash was the result of faulty wiring, extra line switches.

Second grounding was caused by emergency landing of an American Airlines DC-6 with a winging bulb at Gallegos, New Mexico, April 24. Despite the crash, the airline said the plane's engine trouble for emergency landing failed to affect the flight. The FAA safety investigation refers to Gallegos, Texas, where the plane was grounded for the crash of a Boeing United Airlines DC-6 that killed all 72 persons aboard, found sufficient similarity between the two facts to warrant official grounding of all DC-6's but said the airline and Douglas voluntarily inform any action completely after the Gallegos landing.

• **Airlines Warn**—Indications were that aircraft and the Douglas company, both airline and Douglas, were to be grounded. In the United States, the flight-based CAA grounding of all Lockheed Constellation in the summer of 1944 would keep the DC-6's as the ground rule until the fire in the period between the crash of the airline and the Lockheed Constellation, Lockheed announced the major financial loss.

American and United Airlines who operate the bulk of the 91 DC-6's from U. S. domestic airlines (Douglas and National operate the rest) were flying about 80 percent of their normal schedules using Douglas DC-6's on their main DC-6 schedules and halting the DC-6's runs with additional Douglas DC-6's. The airlines will be considerable financial loss from their extra-line unscheduled DC-6 runs through and between DC-6's.

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Convair's model airplane in test before its recent crash. (Press Photo)

Roadable Plane Crashes In Test

Fifth design of "fly-car" by company goes down in Calif.; pilot not seriously injured.

Concluded. Victory brought from under wings the fifth of an series of flying automobiles only to have the crash only in test flight at Chula Vista, Calif. The automobile version of the four place Convair design proved itself was badly damaged. Coming on the heels of Convair's announcement of new flight, the crash had already made news when it went down. The pilot, Lawrence Phillips, was not seriously injured.

With smart body last spring's tag of a Studebaker in construction, the crash is equipped with a detachable wing which was not seriously damaged in the accident.

The 191 lb. wing, strapping in engine wheels and controls the head of the automobile, is attached by simple bolt connections through the roof of the auto. Entry through the roof of the auto allows entry to the wing attached light instruments and control cables that attach to the steering wheel.

Designed by Theodore P. Hall, this model airplane is a departure from the Douglas' original model (NA-161) which was built in 1940 in that the 191 lb. Lycoming engine for control power is mounted on the detachable wing. Hall's original model, road-tested and flown in the San Diego area in 1938, utilized the same motor for both ground and aerial travel, with a detachable propeller and wings. This new model has been continued engine.

His demands on Hall's test caused him to turn his project over to the Southern Aircraft Co. for additional development. Convair's new model is the latest example of Hall's work now that he has time to devote to the roadable aircraft project.

Convair had an immediate intention of entering the "fly-car" in the personal aircraft market, but had been told that may be conducted for several years as

performing design and having an entry into conventional personal airplane market has and evidence is obtained that the world will accept the only system of an automobile with detachable wing. Convair's engineers were the design of the automobile which it might be said initially without wing, as a conventional road automobile, with the wing later either stored or sold as a plane.

At press time no statement was available from Convair on the cause of the accident.

CAA Studying Plan For Lightplane Rentals

Control of lightplanes from local flight restrictions for use by CAA inspectors is being considered by Civil Aeronautics Administration. The plan has been recommended by the committee by a special CAA committee after study of methods to control

able inspection in the field is easier than civilian airplanes throughout the year. The committee had heard last week for assistance and experience of CAA aircraft would not permit necessary inspection, and under present arrangements.

Due to expansion of CAA toward war surplus planes—AT-6 advanced trainers which cost about \$25 an hour to fly—already has resulted in almost complete out-of-control of inspection flying for the remainder of the year because of inadequate funds. Transfer of these planes to CAA was authorized by Congress in 1945 in light of appropriations to purchase new light aircraft. If the proposed adequate, these planes will be turned over to War Assets Administration for sale.

Control of civil airplanes, which the committee believed should be possible on an annual cost basis at about \$30 an hour, would enable CAA inspectors to stretch their flying time to the 90,000 hours estimated as necessary for the inspection of official duties in fiscal 1948. At the same time it would be possible to continue operating CAA's two-engine planes in army patrol, emergency operations and reconnaissance training at the existing rate of about \$4,500 hours annually.

More Planes

U. S. Air Force is gaining 650 fighters and bombers in its tactical groups. The planes, now in storage, will be upgraded and readied for service before Jan. 1. Among the planes going back into service are 116 Douglas B-26 and 400 light planes, now equipped and shared between North American F-51's and Republic P-47's.



NAVY UNVEILS MUSTANG XP51-1

Artist concept of new Mustang flying boat attack radial new flying boat built by developed by NACA. A standard Mustang XP51 flying boat design has been designed to incorporate longer, thinner hull with already existing construction in mind. Such radical and expensive carried into hull of standard Mustang. New flat supporting structure reduces drag. Flying boat hull provides rugged wing with supporting structure. XP51-1 hull will be test flown first on converted Commonwealth Fleet Air Arm ship. (Navy Drawing)



McDonnell Flies Ramjet Helicopter

Experimental craft built for Air Force lifts own weight, has hit 50 mph.

By ROBERT McARTHUR

The world's first ramjet helicopter has been flight tested successfully by McDonnell Aircraft Corp. under a research contract with the U. S. Air Force. The test craft is 90% an actual tactical aircraft but simply a flying test stand to develop ramjet-powered helicopter blades.

The "cruiser" weighs only 110 lb. but has lifted a useful load of 100 lb., plus several helicopter performance. It consists of a single welded steel tubular frame with a large rotor and a large saddle to provide directional control. Because the thrust is delivered at the blade tips, no torque is created and neither counter-rotating rotors nor an anti-torque tail rotor is required.

Major Problems—A ramjet-powered helicopter presents several major problems, all of which have been individually overcome by McDonnell engineers headed by Constantine L. Zakharov, chief helicopter engineer. The ramjet engine engine has design and basic power efficiency through its ability to produce a sufficiently high pressure ratio. The 9-ft rotor blade of the McDonnell jet helicopter operates at a speed of 410 miles per hour at which speed the rotor blades are (pressure ratio only of the order of 1.1). In contrast to the G.T.1 of a typical reciprocating engine and 8-1 of the supersonic jet engine.

To accommodate the low pressure ratio the rotor can be turned up to high subsonic speeds but this creates severe losses in blade efficiency resulting in poor lift of the machine. Determining the proper blade diameter and tip speed in which both blade efficiency and ram

jet efficiency are at an optimum value is the objective of McDonnell's Air Force research contract.

100 Mph Speed—Designed for a top speed of 100 mph, the helicopter has already been flown at 50 mph, an insurance against. Then forward speed increases the ram air speed into the ramjet engine on the speed ratio to 510 mph, near the maximum for blade efficiency.

Another major purpose of the research investigation is to determine the effects of ram jet ramjet efficiency. The ramjet engine has heretofore proved extremely sensitive to changes in the angle of incoming air, only two or three degrees being required to upset its combustion. McDonnell engineers have improved this characteristic to allow inside row angles as high as 15 degrees to accommodate both the rotation of the jet about the rotor head and the change of blade pitch during rotation.

Ramjet Weight—The rotor jet ramjet engine weighs only 10 lb. and is mounted by liquid freon, which is carried in two tanks on either side of the frame. A small combustion heater located on the stern part of the frame, it is used to preheat the fuel before entry into the engine. A large exhaust stack projects upward and around to give the burner of combustion away from the pilot.

An F-100 contract to AAF W-33-015 AC 14015 was awarded McDonnell in June, 1946 and the helicopter first flew on May 5, 1947. The ensuing months have seen considerable changes in the test craft with many more in flight tests planned. Flight tests have been in charge of Charles B. Wood, Jr., former Navy jet, in charge of design of today's wing testing at Naval Air Station Patuxent. He is chief test pilot and manager of helicopter contracts at McDonnell.

Phantom Test—The use of jet

propulsion for helicopter power has offered attractive possibilities through its elimination of torque and accompanying heavy rotor head lagging and linkage, tail rotors, etc. The first jet helicopter development was pioneered by the German Dornier design which was powered by a conventional thermal jet conducted out along the blades and issuing from the tips.

The high fuel consumption, noise and open flame of the jet helicopter may pose significant obstacles to its widespread use either in commercial or military applications but both McDonnell and Air Force engineers feel the positive attributes of the type are significant enough to warrant an intensive investigation. Next phase in the McDonnell research program is conversion of the ramjet engine and tail rotors for the use of ordinary gasoline.

XB-46 Record

Convair XB-46 four-jet bomber set new mid-air speed record during its delivery dash to Wright Field for delivery and acceptance tests following USAF acceptance of the plane a month ago. The bomber averaged 500 mph in its 2 1/2 hr. 15 min. dash from Martin Air Base, Ga., to Tinker Field, Okla. Following this it averaged 535 mph to Oklahoma City-Wright Field, Dayton, Ohio, flight, covering the 500 miles in 1 hr. 40 min.

Capt. Glen W. Edwards, USAF pilot, said he made no attempt to set any records and was surprised to learn he had reached top-flight mark upon landing at Oklahoma City. The craft will undergo further flight tests at Wright Field to determine its suitability as an Air Force tactical type.



ENLARGED GRUMMAN MALLARD: First photo of Grumman XJR2F-1, enlarged version of the amphibious Mallard, shown here. New transport coming in to land after only two days of flight. This engine amphibian carries over 14 passengers or 16 liters in seven places. Cargo section can carry two tons. Big craft is not unusual, comes at 180 mph. Two have been ordered, Navy photo.

New Aircraft

Latest Grumman Amphibian

Navy's XJR2F-1 completes preliminary land and water flight tests.

Latest in the long and highly successful line of Grumman amphibians, the Navy XJR2F-1, has completed its preliminary land and water flight tests, according to the Navy. The 124-ton transport is a geometric progression of the basic Grumman amphibian design pioneered by the "Goose," "Widgeon" and the recent commercial "Mallard."

Basically better than the "Mallard," the new XJR2F-1 is designed to do the same work more efficiently job as its predecessors but will carry about twice the load at a higher speed even a larger usage. To accommodate the amphibious but still job of a flying supply ship, the new XJR2F-1 features flexibility of arrangement with three basic configurations possible:

- Passenger—A single row of seats on either side of the cabin accommodates 14 passengers plus a crew of three.
- Rescue—A hospital plane, 16 liters with two medical stretchers can be accommodated. In addition special passengers have been made for air-sea rescue operations for transferring prisoners about at sea from distressed vessels.
- Cargo—The cabin can be cleared for cargo carrying and a load of 3 tons of supplies can be carried. A variety of special tie-down and stowage provisions have been incorporated.

Clearly, the new XJR2F-1 compares

well to a DC-3 with the additional facilities of water operation. The amphibian design into the craft of about one ton is useful load. Otherwise it is similar to the DC-3 in performance.

Two XJR2F-1 amphibians have been contracted for plus one more but no more. Following extensive flight tests at Patuxent and evaluation of the new de-

GRUMMAN XJR2F-1	
Two 1450 hp Wright Cyclone engines	
Span	50 ft.
Length	60 ft. 7 in.
Height	22 ft. 6 in.
Wing area	551 sq. ft.
Max. speed	250 mph
Cruising speed	180 mph
Climb	25,000 ft.

sign a study, as a Navy transport, production contracts may well be forthcoming.



FIRST PHOTO OF COMPOUND ENGINE

Alford V-1710-E-17, new compound engine equipped and tested from contracts to first engines by the General Motors plant in development of the engine, rated 1450 hp power from 1750 to 1,800 hp, and reduced fuel consumption 18 percent to a new low of 0.35 lb./hp-hr. Horizontal-mounted, very compact, power from engine to turbopropeller, at extreme left end of engine. Twelve in. diameter fuel, through heavy gate box and shaft to main engine crankshaft. Super-charger as a catalyst through curved manifold into exhaust and (shown through main exhaust) into engine intake manifold. Exhaust exhaust gas temperatures of 15,000 degrees F. passed for two hours for safe operation.

Russians Have 14,000

Combat Planes-Sputnik

Russia now has 14,000 five-line combat planes, about three times the number and fourth of the combined U.S. Air Force and Naval Air Service, according to Gen. Carl A. Spaatz, USAF Chief of Staff.

Spaatz told the President's Air Policy Commission that the United States required a minimum of 7,000 first-line combat planes backed by a strong reserve production and research program. He declined to comment on the quality of the Russian five-line planes but said that more than 100 first-line planes of several different types participated in the 1951 May Day celebration in Moscow. Spaatz said that the Russians had the capacity to build from 300 to 1,000 B-26s each day; five-line fighters built into their basic war load increased to 100 in 1954. Spaatz also confirmed Russian long-range bomber capability, stating that the Russians had successfully attempted to buy two bombers and were required for B-29s from the American military enterprise.

AVIATION ECONOMY

May 19, Association of American Airlines, Washington, D.C.

May 14, Air Transport Association, Washington, D.C.

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INDUSTRY OBSERVER

Watch for CAA Administrator E. B. Wright to publicly charge his boss on the radar system soon being installed on a transatlantic route for the Air Force. Wright has opposed the order given in planning the CAA sponsored navigation system with the same stubbornness with which he opposed introduction of radar ground control approach system to civil aviation. Now, as a trustee to relieve Congressional heat on the CAA for failure to cooperate with the military, he plans to make the service to airlift first-line bombers alongside CAA communications. Ray, Carl Hovde (R, Calif.) chairman of the aviation subcommittee of the House Legislative and Foreign Commerce Committee strongly recommended introduction on a radar system suitable for both military and commercial use and criticized the CAA navigation program because it offered little use for the military or private firm.

Officials of some airlines operating in the Golden Field are so unhappy about the new CAA's first action order on operating the radar CAA and that they gave a gift from the Air Force that they are considering a suit petition to CAA regarding their surface personnel take over the operation. Airline personnel have operated the CCA at Denver, New Orleans with outstanding success and are scheduled to handle the CCA at new radar installation at Shannon, Eire.

Senate War Investigative Subcommittee's probe of May Gen. Bennett Meyer promises to broaden into a sweeping investigation of wartime relations between Wright Field procurement officials and the aircraft contractors. Two aircraft firms, it is reported, will escape the spotlight. Contractor scores credit for Gen. William O'Dwyer, C-3 intelligence officer with a "clean eye" at Wright Field in the mid-1940s, and the "best of the best" of the O'Dwyer's "best of the best" to his old way and "improvements" in the dealings of procurement officials with contractors was widespread. Whether the act of the committee will be extended by the Senate before its present life, it definitely depends on quality of evidence it develops from now on.

North American's B-45 jet bomber is flying with a new and enlarged fuselage configuration, giving greater dorsal area, at Marine Army Air Base. A stability problem is being investigated at the test airfield and the dorsal completion of operational tests of the only jet bomber to receive a production order before its prototype was flown. In the meantime Army has accepted the Convair X-45 jet bomber, which was built on an experimental order for one airplane.

Probably that Northrop might send its prototype Pioneer transport as a railroad test on December 26 now after the plane was damaged to permit a complete tandem inspection of its new Wright C-3 engines by the engine company. Plans for Pioneer display flights resumed recently, but probably will be conducted after the test of the new jet to demonstrate engine design and make changes of internal domestic order airlines. A South American tour also claims near completion.

Four major airplane builders are wondering if Slick Airways will be the first or bright line to buy overproduction flight planes. Slick engineers have been visiting aviation plants in succession, and at each indicating "strong interest" in the purchase of the Convair Wright CW-32 cargo plane, a bright series of the Douglas DC-3, a light-carrying model of the Lockheed Constellation, and the Boeing B-29 Superfortress.

Boeing Aircraft orders for Strakebom transports now stand at 55 as follows: 20 for Pan American Airways, 10 for Northwest Airlines, 8 for American Overseas Airlines, 7 for United Air Lines, 6 for British Overseas Airways Corp. and 4 for SAS (Swedish Airlines).

New Frontier plane has taken aircraft engine under development for the service is equipped with the new NACA supercharge compressor.

The Navy has tested and approved the use of variable pitch propeller on Martin P4M-1, Lockheed P3V-3, Curtiss SB2C-3, Grumman F4F-1 and the new Martin XP4M-1. Reverse pitch is used on the single engine type as drive helices.

Doegler AD-1 Skyraider deliveries are speeding out Navy's carrier attack squadrons. Added to orders the new equipment in CVR-3 on the U.S. 3rd Fleet's P-4M-1B on the Sicily, VA-18A and VA-20A both on the U.S. 8th Fleet have received their full complement.

AVIATION WORLD NEWS

Special ICAO Meeting Studies New Air Code

GENEVA—A new attempt to work out a legal code to govern the commercial phases of international air transport was under way in Geneva last week at a special conference of the International Civil Aviation Organization.

About 25 of the 44 ICAO member nations sent representatives to participate in the study for a formal set of regulations to replace the approximately 300 different bilateral agreements between individual countries that said now have regulated international commercial aviation.

The meeting follows failure of last year's ICAO assembly to agree to a second draft of a multilateral agreement, the second such disagreement since the 1944 International Civil Aviation Conference at Chicago. A draft multilateral agreement was submitted by the government organization's council to the assembly in May 1946, but was considered a failure. The second draft was the result. Now the special meeting aims to reconcile member states' varying views in its latest draft.

Now and 44th member of ICAO, Colombia, which claims full sovereignty Nov. 30, a month after deposit with the U.S. State Department of its ratification of the convention on international civil aviation. Colombia is the 14th Latin American state to ratify.

South African Air Council Adopts "Patter" Standard

JOBURG—The South African Air Transport Council has adopted the standard radio telephone pattern and down by ICAO for all its members, who include South Africa, Southern and Northern Rhodesia, Nyasaland, East Africa and the United Kingdom.

The council's recommendation will apply to international service operating in Southern Africa, says British Overseas Airways Corp. and Pan American Airways have abandoned their own pattern.

The S. A. T. C. also arranged to provide airline operators with latest news in condition of airfields through a proposed new system of radio information. And agreed to adopt ICAO standards at all its airfields.

Melbourne Letter:

Australia Shakes Off Coma

MELBOURNE—The paralyzing coma of uncertainty which gripped Australia's aviation industry after VI Day has yielded to new enterprise and vigor. The industry is now re-awakening and business from during the war, but it has failed its bearings and is planning to pursue course with confidence that it is getting somewhere.

For a long time it was ages waiting whether the aircraft plants would survive in the post-war. The big commercial aluminum rolling mill at Wagga was closed down. Airline operations had already been crippled by shortages of fuel. The strike loss that state-owned schools will suffer from an complete.

Commercially private is becoming a headache to private operators in new areas. Casualties taken and landing fees, both collected to pay for maintenance of ground facilities. ANA, biggest private operator, is contemplating building its own airport to get relief from the airport.

Private airlines are also being hit by the progressive absorption of international lines and the increasing overdependence of the Commonwealth-owned TAA line on military routes.

During 1947 the volume of traffic on Australian airlines has collapsed to half. Most airlines and some airlines are flying some passengers than ever before. But the boom shows symptoms of lacking air.

The Department of Civil Aviation is building down to the level of getting away from the top of the government's financial support. TAA is a noticeably efficient enterprise setup, and since it has written out its establishment account it will probably be as prosperous as ANA's principal partner.

Changes have been made that government airlines are grabbing all available dollars for importation of latest type American equipment while private firms are cold-shouldered when applying for airport loans. The truth, however, is that no order has been placed by any airline since the dollar crisis came to a head late in August.

—Herbert Loepold

FINANCIAL

Withdrawal of Aero Insurance May Hurt Personal Plane Market

Retirement of veteran underwriting firm from aviation field may increase premium costs, detract from losses.

The proposed withdrawal of Aero Insurance Underwriters from the aviation field may be expected to have a serious adverse effect on the private plane market. Other planes of aviation are also bound to feel the repercussions of Aero's retirement.

The Aero syndicate has been underwriting from writing areas now risks Dec. 31, 1945. Policies in force at the end of the year will continue to be serviced until expiration and when all outstanding commitments have been fulfilled, the syndicate "in its personal files" will then be dissolved.

The reason for this decision are not difficult to find. As previously indicated (Aero News, Dec. 6, 1944) a high rate of insurance losses in the personal plane field has caused serious concern to the underwriters. Of considerable importance at the present time is Public Law No. 15 which raises some questions as to the part of aviation insurance companies whether it would be violation of the act that law is to write such aviation risks as a condition after July 1, 1945. The law and similar phases of the insurance business will probably compel them to reduce aviation policies, but not aviation. This reduction has caused a definite feeling of uneasiness for a group of companies who had previously intended to withdraw from the Aero syndicate because of this reason.

► **Not All Agree**—However, not all constituent members of the syndicate appear to be in accord in viewing the withdrawal provisions. It is reported that some companies have been inclined to seek Congressional clarification of the law, to include aviation insurance underwriting in the exemption category. The group with opposing views are reported to feel that this move would be worse as in the aggregate, aviation insurance is relatively unimportant to other forms of insurance currently being written. Moreover, the fear for such companies would merely invite further governmental attention and actual intervention in that activity.

The fact remains that if the aviation underwriting business had been profitable, it is reasonable to assume that the syndicate would have been present for

the Aero syndicate to remain in business and possibly reap and means would have been devised to increase the insurability of the aviation lines. No enterprise can be expected to fight to survive for the privilege of being money.

At present the insurance companies have a very small, but they are actually handling. Further, the total volume of business that can be written is definitely limited to the extent of available capital and surplus. This is responsible for continuing concern to a large extent. As the companies are faced to be highly selective, it is quite obvious that the most profitable type of risk will receive preference. Under such circumstances, aviation insurance can hardly be expected to be sought eagerly by the underwriters.

► **Premiums Increase**—When was formed in 1932 and may last 30 for and as results compare. When the long conduct covered the aviation underwriting field it caused a serious effect in reducing premium rates, the normal reaction of introducing competition. In the event this is highly probable that with the elimination of a major group premium rates may now be inclined to increase.

Along with this the aviation insurance group, control of the United States Aviation Underwriters and the American Aviation Underwriters. None of these underwriters are insurance policies directly but are merely service organizations for their constituent companies. In addition, there are a few companies who engage in aviation underwriting directly without insuring themselves, or one of the facilities of the three main syndicates. Some of these companies have been identified with aviation activities for a considerable period of time.

► **Reaction Will Vary**—It is difficult to anticipate the new situation which is critical with regard to Aero's disavowal. The one thing that is a serious question whether the remaining aviation underwriting groups will have sufficient capital to sustain all of the business to be available. Even without the aid of mutual, or similar, funds on their capital, the insured loss experience of 1944

has underwritten, these companies are definitely limited as to the amount of risks they can assume. It is for this reason that many aviation companies are attempting to increase their capital and surplus so that they can broaden their markets. Similarly, there is some discussion as to the advisability of selling a reduction in such capital and reserve requirements which would help to complete the same purpose.

If it is fully appreciated, the aviation insurance underwriting is a potent factor in promoting increased safety standards in all phases of aviation. Aero will be sorely missed if for no other reason than the contribution it has been making in this direction. Its safety engineering division is outstanding and has frequently taken the initiative in promoting measures for safe flying.

► **Basic Doctrine**—Although a track organization appeared as sponsor, it was the aviation insurance interests which actively guided and financed the recently issued "Basic Doctrine and Code of Recommended Practices for Aircraft Service Operations." This is an example of the constructive approach the insurance group has taken to improve the lot of the fixed wing operator. This code is a valuable guide for the successful operation of a fixed line. It represents criteria for practicable tips, gleaned from experience and compiled at considerable expense. To test its effectiveness, the code is publications and distribution furnished by the insurance interests, will shortly be released to fixed line operators throughout the country.

As previously indicated here (Aero News, Dec. 6) the high rate of insurance losses is proving a serious detriment to the aviation plane market. As a depressed market for light planes can suit only a paper profit and financing facilities are available. The latter can only prevail if the insurance situation can be viewed as less critical. No credit agency will extend an aircraft loan without adequate insurance protection. With such protection as existing underwriting rates (over 20 percent of the original purchase price for most planes) the cost becomes prohibitive in developing a broad market.

There are other ramifications of having such a limited number of aviation insurance companies in the field. The premium cost of the various insurance coverage carried by the individual and non-credited carriers may increase. This is due to higher loss experience as well as to the limited amount of cover that can be written by the aviation underwriters. This vicious circle can be broken in increased safety in the aviation field machine underwriting again because to desirable that it will attract an increasing number of companies thereby driving premium rates down. —Selig Altschul

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ENGINEERING & PRODUCTION



Lineup of Consolidated Vindicator's new L-131 liaison plane at the San Diego plant shortly before delivery to the Air Force. Consair

has delivered more than 28 of the planes and is going ahead on the balance of a 145-plane order at the rate of one week working day

Export Rally Seen In Lightplane Sales

Foreign personal plane shipments for nine months exceeded last year's total.

The export market for recreational products, after following the downward trend of other foreign sales in real terms, may be edging slightly, at least in the personal plane category.

Naval Industries Association reports that in September 137 companies exported 137 four-place and smaller planes valued at \$68,865, as against the August total of 109 planes valued at \$70,578. In addition, at least one major export distributor in the New York area shows a twelve percent increase in October sales.

According to AIA personal plane exports this year are running far ahead of last year's record, for the first nine months totaling 1,240 planes valued at \$7,212,637 compared with 1,033 valued at \$5,295,943 for the entire year of 1946.

Although the number of planes exported in September fell one day at the monthly average of 13% for 1947, the dollar value for September ran ahead of the 1947 monthly average of \$779,182.

■ **Meet Gaud.**—The September personal plane exports are encouraging from an early angle. Value of exports was 18.5 percent of the value of total personal plane production while the number exported was 13.4 percent of the total production for that month. The industry's goal is to export in 15 percent of total value and of total production.

The September sales exceeded the target in value at least.

In the end of August, overall industry exports amounted 2,240 planes valued at \$42,500,000, and 3,840 ex-

ports valued at \$12,700,000. Although the number and value of exports of all types continued to drop in August, engine exports showed a slight decline in September, and an increase in the value of engines sold offsets the losses.

■ **Best Markets.**—Other western hemisphere countries continue to be the best markets for personal planes and small engines, while the market for large planes and engines is scattered.

Both Argentina and Canada reported 23 personal plane types in August, with Argentina buying 17 and Canada 14 in the following month. Brazil accounted for exports from five in August to 26 in September. These countries were the major markets for personal planes probably in most part because it has generally been understood that only Argentina and Brazil in South America are able to maintain reserves of dollars. The dollar situation in Canada, while serious, does not seem to have been serious.

Sales of larger planes and engines can primarily be written to the delivery schedules of U. S. transport manufacturers. The August report lists two planes to the Soviet Union with a value of \$1,774,100—C-47s—plus Consolidated for 100 V-1s, standard in that number from August 17, engines in the 2,500-3,000 hp class. While not attended, then, could be shipped up Wright Cyclone, the aircraft power the Model "H" Consolidated bought in Argentina.

■ **Dollar Controlling Factor.**—U. S. aircraft exporters report no slackening in demand for U. S. in restricted products. The difficulty remains the same as it has been—the obtaining of dollars. Due to this fact monthly reports of export sales are not such an index of export activity as they would be if it were the availability of dollars in export business are gauged only in terms that are not direct dollars or a credit to pay.

Convair L-131 Production Reaches One Per Day

Consolidated Vindicator Corp. has delivered more than 30 L-131 liaison planes of a \$1,922,450 order for 146 and has reached a production rate of one per day at its San Diego plant.

First production line versions of the aircraft, holding-wing plane have gone to USAF's seventh liaison squadron at March Field, Cal. Two others have been flown to Wright Field. For leaving purposes, Convair is installing extra fuel tanks, giving the planes a maximum range of 750 miles.

Another version of the plane the L-131B, has been modified for cold weather operations and is due for testing in USAF's climate house at Wright Field. It is expected that about 20 L-131s will be available equipped.

The L-131B incorporates about 15 changes from the standard model including a 16,000 BTU combustion heater and ducting, low-temperature lubricants on side walls and all other surfaces and lubrication designed for low temperatures in the low -650 deg. F. M-1-17s can be kept equipped.

Jack To Do Research

William S. Jack, who has been working on aircraft construction with Jack & Thomas Engineering Works, New York, the company has built four craft into a large industrial concern, has organized a research laboratory on the West Coast to develop special parts.

In a letter to Robert C. Fox, now president of GEI, Jack outlined his own company and expressed the intention of offering to his former boss in engineering and sales rights in projects he was developing. Elizabeth Jack settled in Los Angeles in California, has moved to to repair his business in Cleveland, some of his success with GEI.

Altitude Blow-Out of Jet Engines Under Widespread Investigation

Mystery of P-480 powerplant failures explained by studies that now offer hope for new designs that would eliminate difficulty.

By ROBERT McLAUREN

THE FACT that the turbojet engine fails to support combustion at critical combinations of engine speed and altitude has come from a number of reports of mysterious engine failures which began shortly after introduction of the Lockheed F-80 Shooting Star into service last year.

At first it was presumed that this combustion failure occurred above a certain critical altitude of the aircraft, but reports continued to show failures at altitudes as low as 12,150 ft. It was then hoped to support engine over speeding as the culprit. Information on hand, however, showed failures to be engine speed in line at 5,800 rpm had been recorded.

In comparison, the rated speed of the General Electric J-40 is 11,700 rpm, the GE TG-180 is 7,900 rpm, and the Westinghouse J9-A is 15,000 rpm. It was clear, then, that neither of these factors alone was responsible and the solution probably lay in some critical combination of altitude and engine speed.

► **Operable Conditions**—Figure 1 illustrates the regions of these failures. The area under the curve represents inoperable conditions, under which the engine is operable, while the area above the curve contains the conditions under which the failures occur. The chart formed the basis for a more detailed ap-

proach to the mystery under an aid clearly reveals that neither engine speed nor altitude are directly responsible.

There are, for example, two engine speeds at which combustion will be sustained at 24,000 ft: 4,000 rpm and 15,000 rpm. At another example, if the engine is operating at 10,000 rpm at 16,000 ft., it will have to be either speeded up or slowed down in order for the engine to climb.

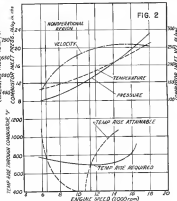
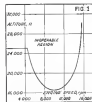
The engine will "blow out" if it is maintained at 10,000 rpm and the altitude raised up to about 16,500 ft. If the engine speed is reduced to 4,000 rpm and the altitude is placed at 16,000 ft., the engine will blow out if it is above 15,000 ft. If it is speeded up to 16,000

rpm, the engine can be climbed as high as it wishes.

► **Four Major Factors**—By their nature, the critical region, it was possible to examine the individual factors as related to turbojet combustion at the exact boundaries of failure. The problem was submitted to the Flight Performance Research Laboratory of the National Advisory Committee for Aeronautics and a thorough study was made. This study produced Figure 2, which reveals about 1 square inch four major factors in turbojet engine combustion and reveals their individual effects on altitude blow out.

The chart reveals a critical region extending from 6,000 rpm to 14,500 rpm, in the combustion chamber devoid and is typical for all turbojet engines. The basic performance parameters for the turbojet engine in the combustion chamber (through the combustion chamber) are: how much heat the burning of fuel adds to the air taken in before delivery to the turbine.

In the lower portion of Figure 2 is shown the temperature rise measured for operation of the engine together with the temperature rise attainable under the test conditions. Operation of the engine is only possible when the temperature rise is greater than that in control and that condition exists only at engine speed greater than 11,500



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Regional air transport, rapidly taking on significance in the air transport picture, requires the development of aircraft specifically designed for this type of operation. Aircraft designers, in their search for increased efficiency and economy, will continue to rely heavily upon the numerous structural advantages inherent in DSTOT's Seamless Steel Tubing.



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give and lose than 6,900 rpm.

► **Close to Closestness**—is a similar moment 1 gpm. 2 shows the variation of the static pressure of the air entering the combustor from the compressor, its temperature, and its velocity. It is the variation of these four factors that determines the operating characteristics of the turbine engine. (a) inlet static pressure, (b) inlet temperature, (c) inlet velocity, and (d) inlet air ratio.

The main shaft effect of varying each of these quantities while holding the others substantially constant is:

- **An increase** in the static pressure of the air entering the combustor produces an increase in the allowable temperature rise through the combustor.
- **An increase** in the temperature of the air entering the combustor also produces an increase in the allowable temperature rise through the combustor.
- **An increase** in the velocity of the air entering the combustor produces a decrease in the allowable temperature rise through the combustor.
- **An increase** in the inlet air ratio in the combustor increases the allowable temperature rise through the combustor up to a peak (fuel air ratio) after which a decrease in the temperature rise through the combustor.

Although it would appear from the foregoing that the problem could be solved simply by increasing (a), (b), and (d), while decreasing (c), a reference to Figure 2 will reveal another interesting factor in altitude blow-out. It will be noticed that both the pressure and the temperature increase at ascending rates, as indicated by the increasing decreasing slopes of the curves, above the velocity increase. It is this combination of both an increase in engine speed (thereby increasing the engine speed) creates a favorable combination in the pressure and temperature rise which is offset by the unfavorable slowing down of the rise in inlet velocity.

► **Reference to Dead Band**—Within the dead band, the engine speed is in the range between 6,000 rpm and 11,000 rpm, both the pressure and the temperature increase with engine speed and the velocity increases very rapidly. This clearly means that the inlet velocity (see (c) above), which is unfavorable in the case in both pressure and temperature to such a degree that the temperature rise available at these engine speeds is far below that required for engine operation.

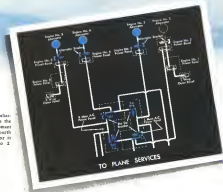
At the low speed end of the operating spectrum it is evident that both the pressure and the temperature are low, an unfavorable condition. At these low engine speeds, the inlet velocity is also low, which is a favorable condition and which enables the combustor to produce the required temperature rise in

spite of the very undesirable pressure and temperature values.

► **Cool-It** helps these studies discard up the spraying of altitude blow-out of test engine types, did not solve the problem of providing an "all altitude all engine speed" design concept. This problem can only be solved through an intensive research in combustor design. The desired characteristics of a combustor include:

- 1. Stability of operation.
- 2. High Combustion Efficiency.
- 3. Minimum Pressure Losses.
- 4. Minimum Volume or Size.
- 5. Minimum Weight.
- 6. Low Maintenance.
- 7. Low Cost.
- 8. Low Emission.
- 9. High Reliability.
- 10. High Life.
- 11. High Availability.
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- 820. High Reliability.
- 821. High Availability.
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- 823. High Reliability.
- 824. High Availability.
- 825. High Maintainability.
- 826. High Reliability.

DEPENDABLE ELECTRICAL POWER



Schematic diagram of the electrical-current system on the B-36. Westinghouse equipment is shown in blue. A fourth Westinghouse Alternator is proposed for engine No. 2.

AIRBORNE

ELECTRICAL EQUIPMENT • INSTRUMENTS • MILARCA PULSES • STRUCTURAL PARTS • PANS, HEATERS, COILS • JET PROPULSION



for the world's largest bomber

Backbone of the B-36 electrical system is Westinghouse

When a single plane requires for its operation *for electrical circuits, involving to-millions miles of wire . . . near hundred electric motors and associated controls . . . in electrical system must offer unprecedented dependability.*

This explains the unusual care exercised in selecting electrical components for Consolidated Vultee's new B-36 bomber—the world's largest! And among the equipment selected for this vital task the Westinghouse name appears with significant frequency . . . particularly in those applications where dependable performance counts most. Typical examples are the Alternators

for engines 3, 4 and 5 and the Voltage Regulators for each . . . the Alternator Breakers and the Bus Tie Breakers.

Westinghouse is proud to have its name linked with another important achievement in aircraft design, but more so because of what it brings to you . . . *dependability in all Westinghouse products for the aviation industry.*

For more information on Westinghouse aircraft products, ask for a copy of B-3775. Call your local Westinghouse office or write to Westinghouse Electric Corporation, P. O. Box 348, Pittsburgh 30, Pennsylvania.

1-1077



Here is an installation view of one of the Westinghouse 40-Kva Alternators installed to a Consolidated Vultee in the forward wing area. (Generator cover has been removed.) Special importance: generator long life at high altitudes. Excitation is furnished by all integrated d-c sources.

This view of an engine power panel shows the Westinghouse Type AVR-10 Voltage Regulator mounted. Regulation provided is within a 1% over the whole range of 0 to 130° below 0° C. to +15° C. and 0 to 14,000 feet altitude. Good unloading ability at all temperatures and load conditions.

The Westinghouse Type AVR-10 Circuit Breaker (cover removed). There is a Westinghouse Breaker for each Alternator in the bomber's electrical system. Arc interruption is accomplished by (1) self generated strong magnetic field (2) multiple air gaps and (3) surface deionization.

Westinghouse
PLANTS IN 31 CITIES . . . OFFICES EVERYWHERE

*Leader in
Aviation Equipment*

ON THE GROUND

ENGINE STARTERS, BATTERY CHARGERS • AIRPORT LIGHTING • TEST EQUIPMENT • RADAR AND MICROWAVE APPARATUS • LAMPS



memorandum

Don't waste design time on clamps specify Marmar

MARMAR ENGINEERING
ENGINEERING
PURCHASE FROM
MARMAR PRODUCTS CO. INC.
INGLEWOOD, CALIF.

You wouldn't think of spending design time on a standard nut or bolt... why do so on a clamp?

Marmar's standard types, resulting from years of specialized development, will fit almost any application and can be specified just as easily as standard nuts and bolts.

Even if your problem is so specialized that none of the standard designs appear suitable, we can still save you time and cost by submitting a design proposal especially suited to your needs. Send us your problem. Our business depends on solving them faster, more effectively and at less cost than you can.

See your Marmar Catalog for detailed information on some of the many standard types available. • Write for specific design proposals on any clamping problem.

MARMAR
PRODUCTS CO. INC.

P. O. BOX 29, INGLEWOOD, CALIFORNIA



Taxi Tests for Boeing Stratojet

Boeing's supersonic jet bomber, the XB-47, is shown undergoing engine taxi tests and field inspection by pilots and ground crew in preparation for actual flight tests, scheduled for late in the month. (Anson Wicks, Sept. 22.)

Weighing 62 tons and with a fuselage longer than the B-74, the XB-47 is powered by six General Electric J45 turbojet engines providing 24,000 lb. of rated thrust. Auxiliary power for the jet engines is provided in two groups of three jet-suction units mounted on each side of the fuselage just aft of the wing.

The first bomber with swept-back wings and the first airplane with rocket overracks in both wings and tail sections, the XB-47 is designed by Boeing as the world's first bomber designed specifically to achieve the maximum speed possible with jet power plants.

The 1,000-mile range of the bomber is attained in a "transonic" fuel load. Estimates indicate that approximately 15,000 gal. of jet fuel would be required to attain this range.



Remote Indication



with **Magnesyn***

Magnesyn®—is the answer that is providing more and more answers to remote indication problems. Regularly gaining recognition as an essential on today's skyliners, Magnesyn remote indicating instruments are now available for important engine functions as well as position indications. Their light weight (averaging 10½ lbs.) weight saving over other remote indicating systems and rugged construction (shockmounting is unnecessary in most installations) guarantee simplified installations and long service life. Because they have fewer parts, they have added assurance of an extended service life and extra maintenance economy. For dependable remote indication, specify Magnesyn instrumentation.

*Available from stock at the factory, factory direct.

Eclipse-Pioneer

STEREORD, NEW JERSEY

DIVISION OF **Bendix**
AVIATION CORPORATION

Telemetry Offers New Benefits In Civil Plane Test and Operation

Various Commercial Applications Weighed... Features of Equipment Are Outlined and Details of Flight Test Program Analyzed.

Existing test procedures in collecting flight test results of various aircraft, the collecting of data direct from planes in ground flight has been the mainstay of aviation test. The use of this method is costly, and now holds both promise of increasing and greater safety and economy for aviation applications.

Telemetry of information can be the practice of recording flight test data without readings with a sensor portion of the test data and equipment is made dictated the use of telemetry is a substitute method. Tests of this technique—measure of equipment required, space and weight considerations, and continuous information transmitted—needed in its abandonment in favor of present day telemetry systems.

The use of its concentrated application as highly specialized aviation research, little information on telemetry has been available prior to a report prepared by the former head of the Air Force's Flight Test Electronic Control Branch, Colonel Martin V. Kellert Jr. (now of Sherman Fairchild & Associates), for the Research Review Committee of the present development of telemetry systems.

Telemetry systems—based on a reliable and in order, economical (redundant, details of this data reporting and recording method, decline in important potential contribution to commercial aviation progress—particularly in studies of aircraft control).

In scheduled airline operations, telemetry could be used for ground control of scheduled, radio-guided pilotless fighters, for economical operation on overboard routes in automatic instrument landing systems and as a ground controlled cross-check against pilot's checklist list in island and backup. And the system provides a potent technique for increasing the element of human infallibility in flight control.

It is essential that the basic scientific and performance of an experimental aircraft be accurate and complete recorded in advance of placing in service. Telemetry can afford accurate information not subject to the limitations of an observer's ability to read, record and indicate data. It can provide a record in event of loss of the craft under test, thus saving the time of analysis.

Existing, ground testing and determination, under operating conditions, of safety factors incorporated in full-scale structures, without human test personnel, and data, as the future provides, each stage station on other control point with specific flight data on each aircraft when in control area—a great potential aid in safety of equipment and personnel.

System Fundamentals—The overall system has two basic functions—transmission of data for establishing relative altitude and position of the aircraft in space (in present control), and receiving of information for indicating performance of the craft, engine, structure, and other flight components.

Applied to aircraft instrumentation, telemetry can be evolved into three distinct, comprising the sensory functions (transmitter), coding and transmission systems (with associated receiving and decoding), and data presentation method (yes, including, oscilloscope, meter, or indicator).

Equipment Details—Non-redundant high precision equipment for structural flight test could include high frequency receiver device for transmission of specialized information (height, velocity, altitude, accurate level, etc.), and low frequency device for reproducing standard type of instrument readings (air speed, altitude, direction, etc.). Ex-

pendable, simple lightweight component for flight test would be as used in ground models.

More than 100 hourly airline telemetry is shown in evidence to do early the year spent saving data collection and ground facilities and maintenance procedures. Hence, standardization was initiated by the Armed Services, specifying the type of signal, time, and range as capable of meaning, decoding, and reducing.

Instrument systems have been specified for use during operations from present type to the standard work.

Technical Considerations—Frequency assigned to telemetry is an established by governmental regulation and as all above several hundred megacycles. As such, they must be considered as "radio" frequencies (also specified as "line-of-sight" frequencies). This puts a limitation on the range over which telemetry may be applied. The receiving location must at all times be capable of "seeing" the aircraft (or model) in operation.

The craft must not only be "seen" (in sense of "line-of-sight"), from the receiving location, but the accuracy that adequate power be available to bring the record of signal above an inherently limiting signal because that accurate of the particular receiver in craft employed in the telemetry system.

"Standard" Telemetry Encoding and Transmitted Equipment

Receiver	Transmitter	Frequency	Characteristics
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec
AN/AR-11	AN/AR-11	710-730 Mc	100 to 1000 ft/sec

Telemetry Systems

System	Sub-Mission Summary
AN/AR-11	100 to 1000 ft/sec
AN/AR-11	100 to 1000 ft/sec
AN/AR-11	100 to 1000 ft/sec
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AN/AR-11	100 to 1000 ft/sec
AN/AR-11	100 to 1000 ft/sec

ASSEMBLY LINE PRODUCED VALVES
INDIVIDUALLY-ENGINEERED FOR THE

CONVAIR LINER



Seen to be seen on the world's leading airlines, the new Convaair-Liners are outstanding among piston medium range transports. Naturally, these super 300 mile per hour airliners are equipped with Whittaker Motor-Operated Shut-Off Valves. Controlling the fuel

fuel system, these valves have a special metal indicator to show position of valve gear. This individual engineering of full-person design, combined with modern, assembly-line manufacturing processes make Whittaker valves the leading choice among the leaders in the aircraft industry.



DESIGN FEATURES OF WHITTAKER MOTOR-OPERATED VALVES



POWER PACK—It's essential to have a power pack with a 12 volt 15 amp electric pump to operate the valve. It can be connected to a 12 volt battery or to a 12 volt generator in an A/C M. T. or a generator.



VISUAL INDICATOR—Means added to a control to show the position of the valve. It can be connected to a 12 volt battery or to a 12 volt generator in an A/C M. T. or a generator.



LIGHT BEAM—Means added to a control to show the position of the valve. It can be connected to a 12 volt battery or to a 12 volt generator in an A/C M. T. or a generator.

control than the normal atmosphere (usually) more levels at the receiving location.

Referring to the two of right consideration, multiple receiving stations along the flight path can naturally result in a reduction in cost of the airborne equipment.

Distance, over which satisfactory take-off, receiving stations may be accomplished depends upon the transmitting power available at the transmitting station, and the nature of the medium, and the receiving characteristics of the receiving station. The nature of the medium is a factor in the receiving station.

Another technical problem is that of the directivity characteristics of the transmitting station. This is directly related to the antenna design and the effect of the wave on the drag characteristics of the vehicle on which installed. Although an increase in effective radiated power is not related to the receiving station, the directivity of the transmitting station is a factor in the receiving station. The nature of the medium is a factor in the receiving station.

A further consideration relating to the antenna power and antenna characteristics is the effect of the antenna on the receiving station. This is a factor in the receiving station. The nature of the medium is a factor in the receiving station.

It is not to be understood that the nature of the medium is a factor in the receiving station. The nature of the medium is a factor in the receiving station.

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Protective Beauty



for the Stinson
Flying Station Wagon*

From freezing altitudes to hot, dry, dusty, through driving rain and blistering heat and glare—Berryloid Aircraft Finishes are made to take the toughest tests of weather and still come up bright and sparkling.

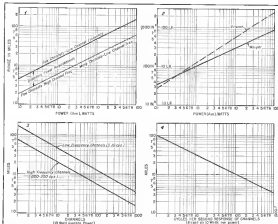
That's why Stinson, and so many other leading aircraft producers, insist on Berryloid. They know that Berry Brothers have spent over 30 years research and development in the aircraft finishes. They know that Berryloid protects and preserves vital metal and fabric, makes against the elements in weather. They know it provides both the beauty and protection so necessary to aircraft.

For new plane production and on existing planes—Berryloid's finish, endearing Berryloid Aircraft as "America's Most Useful Personal Finish."

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AIRCRAFT
FINISHES

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Figures 1 through 4: General aspects of telemonitoring performance. (1) Range vs. location of power in telemonitoring system (transmitter, receiver, and antenna system). (2) New and weight of system as function of power output. (3) Range vs. function of accuracy. (4) Range vs. function of channel frequency noise.

transmission information in a two-way system, then to double the range, the loss of radiation below the power output of the transmitter must be increased four times to provide the same accuracy.

It is seen that weight and size of the transmitter, with its associated power supply, goes up approximately proportionately to the power output requirement, on a four-to-one basis. It is also seen that the necessary increased power goes to the power output capability of the telemonitoring equipment is increased—again a factor of four.

In addition to the base range limits, there is a range extension factor which is dependent upon power level and antenna field pattern. The range is also a function of the number of channels being telemonitored, and the rate and precision (signal-to-noise ratio) with which the information must be presented. This is because for a given power only a limited amount of information

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1,000TH BECH BONAZA

Delivery of the 1,000th propeller to the Wright Aircraft Corp., Detroit, Mich. The propeller is being presented to the company by the Wright Aircraft Corp., Detroit, Mich. The propeller is being presented to the company by the Wright Aircraft Corp., Detroit, Mich.

C-W "Electronic Brain" Aids Turbo-prop Research

An electronic brain which can calculate the performance of a turbo-prop engine in a matter of seconds is being used by the Wright Aircraft Corp. to solve mathematical problems involved in the development of aircraft engines.

The machine is used to develop a simplified system of control for, but it is not attached to, turbo-prop engine. The machine is used to develop a simplified system of control for, but it is not attached to, turbo-prop engine. The machine is used to develop a simplified system of control for, but it is not attached to, turbo-prop engine.

In operation, a 1-g engine is changed in a matter of seconds to a new condition. The machine is used to develop a simplified system of control for, but it is not attached to, turbo-prop engine.

Many tests are being conducted to develop a simplified system of control for, but it is not attached to, turbo-prop engine. The machine is used to develop a simplified system of control for, but it is not attached to, turbo-prop engine.

problem is to calculate by setting a number of dials and reading the resulting answer in a matter of two seconds. The machine is used to develop a simplified system of control for, but it is not attached to, turbo-prop engine.

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production capacity of Ryan's tooling. With the parts and pieces produced in the transaction with North American Ryan has been operating a complete factory, since, department at the San Diego plant for Navion owners since early fall. The 100 total low wing tri-cycle gear Navion is powered with a 135 hp. Continental on cylinder engine turning a Hartzel variable pitch propeller. It weighs 35 lb. 4 lb. in wingspan is 27 ft. 4 in. long. Performance figures showing speed 150 mph, top speed 158 mph, landing speed 48 (maximum flap 50 mph), rate of climb, 100 ft./min., takeoff distance 720 feet (zero flap) 690 ft.

Navion has been known for its good stall and landing characteristics, steady, confident handling, ease of use and efficiency of construction. Wing is designed to give unusually good adverse control at low speeds approaching stall. Root sections of the wing are fair to stall, eliminating tendency for plane to roll. Wingtip is installed three degrees nose down, relative to aerial at root.

CAA Sets Standards For Runway Lengths

Minimum length and strength of runways for which Federal money will be applied have been announced by CAA Administrator T. F. Wright. Runways from 1,500 ft. for local airports to 5,400 ft. for international airports, airports for jet airplanes, length and bearing minimum for runways in each category.

Purpose of the order, according to Wright, is to guide CAA employees in approval and recommendations for runways. Design, to indicate to owners of airport projects under the Federal Airport Act the extent to which Federal funds may be applied, and to indicate to manufacturers and operators of aircraft the type aircraft the runways which will be available.

Delineations of airports listed in the table below:

- **Field**—Airports to serve confined traffic for military.
- **Local**—Airports to serve smaller cities on airway traffic routes.
- **General**—Airports at important cities or junction points on trunk routes.
- **Regional**—Airports serving aircraft making long, nonstop domestic flights.
- **International**—Airports international flights.

By Capacity	Runway	Strength	Field	Local	General	Regional	International
1-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100
100-100	100-100	100-100	100-100	100-100	100-100	100-100	100-100

New Rules

The Sept. 10 ruling by the Federal Aviation Administration, affecting CAA at airports, will mean that light training aircraft must be flown in the same way as other aircraft, with the same rules. This will be explained by some of the following hypothetical case as a typical incident.

On a morning in South California, which has its own airport and given a low, heavy cloud a warning for its flight training course, for north to clear light training in its business course because it is going into the air and has a private license would be a help in going into the air. The Sept. 10 ruling, plus could take this course and pay for at least part of it out of the current pilot's aircraft for the college tuition, and the following \$100. If the student would have \$200 left in a year, he can fly on his flight course.

But that is all changed if he wants to clear that flight course now, it costs a separate check, out of his total enrollment. No longer can he apply money above his current enrollment for the flight course. Now he has to take funds from the next year's enrollment, as "advance" his enrollment to clear to clear flight training. This means that he can clear, take three years of college tuition plus flight training or the full four years from two without flight training.

Not only is it not down sharply on the number of CAA flight training schools, but also on the CAA. Brown, Ohio aviation district director and head of the NASD aviation education committee, announced that he was representative 190 colleges and universities which have aviation courses as elective, while from 10 to 100 of those schools can clear airports. Schools not offering them airports, generally have flight school courses.

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New Lighting System

A new high-intensity lighting system, enabling safe landing at night, was introduced recently at Charleston, W. Va. by \$7,000,000, sponsorship, Kanawha County Airport.

The 60 new 44,000 candlepower units are to be located from a distance of 1,000 ft. where daylight visibility of clouds is limited to one-tenth of a mile. Light intensity may be varied by the tower from less than 1 percent to 100 percent.

For runway safety, each light is mounted on a four-legged coupling which will bend, off at ground level and fall out of the way if struck by aircraft, according to General Electric Co. lighting specialists who jointly developed the system with the American Gas Association Inc.

The units are spaced at 200 ft., in two rows along the 5,200 ft. main runway, with 12 threshold lights, 25 yellow runway lights and 28 clear lights. The runway has 12 ft. and stands 18 ft. from the ground.

NAL Strike Parley

National Maritime Board officials last week were meeting with representatives of the Air Line Pilots Association and National Airlines in an effort to prevent a strike against the carrier. General aviation is NAL's second largest unit, a pilot union which is not a part of the union. Lockheed-Lockheed was worked out when it decided off a set runway into the water at Tampa, Fla., on Sept. 13, 1946.



NEW TIE-DOWN

Little Room of Lynn Flying School described the last time tie-down device he is shown attaching to a Type C-45 at his flying school at Dallas airport, Louisiana. L. B. The device is used on the wing strut, the other end is a concrete block which is used to hold the wing strut in place. A similar device holds down the other wing and a metal tie-down (see photo).

Fixed Base Group Works For Insurance Rate Cut

Establishment of a standing committee of fixed base operators and aviation insurance representatives to work for reduction of aviation insurance rates through greater flying safety was discussed at the 1947 annual meeting of National Aviation Trades Association delegation at Springfield, Ill., last week.

General work for such a committee was proposed at a recent New York meeting of aviation insurance representatives from more than a dozen companies and groups, with NATA serving as the sponsoring organization. It was suggested at the close of the New York session that an organization of its member companies, and possibly some operators from the aviation NATA might be named to serve on this standing committee. The NATA participation was up for approval by delegates at the Springfield meeting.

Approval also was sought at Springfield for the standing committee of the role of good airport operating practices suggested by Jerry Lutz, aviation insurance engineer, and Harold Swick, Pennsylvania Aviation Trades Association president. It has been suggested that the committee should include a representative, receive nationwide distribution among NATA members.

- Other subjects on the NATA agenda will be the operating code in NATA airports.
- Participation along with other industry organizations in a sales promotion program to sell aviation generally to the public.
- Establishment of standards and business codes in each NATA state for operator members, aimed at reducing safety charges for repair and maintenance work which have been protected by aviation operators' aviation groups.
- Setting of uniform restrictions and training practices.

CATA Gets GI Refunds

California Aviation Trades Association credit for financing Veterans Administration to refund \$1,113,750 to 34 operators of West Coast "GI" flight training schools.

Money represents deductions made from school payments earlier in year when VA at Los Angeles ruled that students for flight check costs were not chargeable.

According to Richard Thayer, CATA manager, permanent practice by CATA finally brought a ruling from VA in Washington that flight check charges were not a part of the flight training charges and, on order to refund all amounts previously deducted.

BRIEFING FOR DEALERS AND DISTRIBUTORS

SEGMENTED CIRCLE PROCEDURES—Rouss Airport, St. Louis, Mo. installed a segmenting its runway using the CAA-approved segmented circle, which is made in the minimum end of 14 in. white painted circle. Segments were spaced around the 100 ft. circle, and a road stopped the covered rock lines the tangent line. The circle was painted, the road stopped between the 12 ft. segments were spaced around. Logged areas, two including right hand traffic on the surface, and two including left-hand traffic on the surface, the tangent line, "center" of the circle. Result is a course which is in order all segments and is in order, a 5 ft. circle on the surface of the ground. Total expenditure for the road was \$25 for 11 hours. The idea was done by keeping at the airport as part of their work with no cost without extra compensation. Flying schools should at some other need refer to the ground where the road is a further improvement on the segmented circle. Rouss, operator of the field, says the segmented circle on the ground would cost from \$500 to \$700. The circle has been placed around a Lehigh landing area and windsock with a movable arm on the landing area to show whether the wind requires left-hand or right-hand traffic. Rouss Airport has also indicated in getting a St. Louis airport to adopt a "Shore" No. 1 landing area as a longer at the field along with advertising sign of the company and operator Rouss believes that many local business firms will participate in the same in other facilities if operators can see the necessity.

STUDENT PILOTS TOTAL DROPS—CAA's statistical report on pilot certificate applications, shows a drop in student certificates for August as compared to the same month in 1946. Totals are 17,543 student certificates for Aug. 1947, and 20,467 for Aug. 1946. For the same month however, private pilot certificate shows a gain to a total of 11,753 as compared to only 7,210 for Aug. 1946. Since the large majority of flight training is in GI programs these figures may be interpreted to mean that entrants into the GI flight program are slowing. The drop has been expected.

GA-2 SERVICE TESTS—Nine of the GA-2 three-place amphibians built by Goodyear Aircraft Corp., Akron, have now been placed with fixed base operators in the extensive service test program which seeks public and operator opinion to the plane's market potential. Operators listed now include: Atlantic Aviation, Telford, N. J.; Wichita Inc. just completed its testing program; Northeast Aviation, Philadelphia, Pa.; American Airlines, New York, N. Y.; Howard Hughes, Southern Airways, Atlanta; Hawthorne Flying Service, Charleston, S. C.; Hartzel Aircraft, Hayward, W. Va.; Western Aviation Industries, Okla. City, and Miami (Fla.) Aviation center.

SKYWAY LINE CORPORATION—Plans to incorporate a Skyway 1 aircraft line are being formulated by chairman of committee on civil aviation, which the private Skyway line plans. The association is expected to be followed after the highest incentives which played a material role in developing major transcontinental surface routes. Los Angeles Chamber and Washington (D. C.) Board of Trade at the two ends of the Skyway, are still carrying a large part of the governmental and development load but are recording other steps in business in production.

NEW STENOGRAPH APPOINTMENTS—Appointment of a new Los Angeles regional office and service office for Stinson, headed by William Stewart Voss, sales manager, and Kenneth L. Chandra, service manager, has been announced. Territory includes Los Angeles, San Luis Obispo, Santa Barbara, San Bernardino, Orange, Riverside, San Diego and Imperial counties in California, and Lincoln and Clark counties in Nevada.

MIXED FLIGHT PATTERN—J. M. W. Chamberlain, owner of the poultry completed Chamberlain Airport at Alhambra which has been the subject of legal disputes for more than five years, recently refused the World-Globe Court of Appeals that he proposed a mixed flight pattern to prevent airplanes from his field from being over the nearby community of Fullerton, home of most of the aircraft to his field. Flares would reach an altitude of 500 ft. before leaving the airport proper and would then descend north, away from Fullerton, he said. Chamberlain told the court that he had a letter from the court, the court had the permission to the Civil Aviation Board, while P. F. Randall, Ohio state aviation department chief engineer, testified that he was used to approve the airport as now planned.

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UAL Nets \$1,428,587 During Third Quarter

United Air Lines turned in net earnings of \$1,428,587 during third quarter 1947 to cut its nine-month deficit to \$1,771,615. The carrier had a \$2,345,611 profit during the first nine months of 1946 and reported net income of \$1,902,571 in the third quarter of last year.

Compared with third quarter 1946, United's passenger revenue increased 28 percent, mail revenue 9 percent, express revenue 24 percent and freight revenue 57 percent. Total operating revenue for the quarter was \$22,607,577 against \$18,272,514 a year ago. This gain was made despite the fact that third quarter 1946 revenue included \$3,894,195 from Army contract operations no longer in force.

Operating expenses in third quarter 1947 totaled \$20,181,390 against \$17,077,890 in the corresponding period last year. Operating revenue for the first nine months of 1947 was \$51,686,877 compared to \$48,819,668 a year ago and operating expenses were \$44,865,895 against \$43,199,088 in the first nine months of 1946.

Under its economy program, United has made payroll reductions amounting about \$6,000,000 annually. As of Sept. 30, the company had about \$1,000 on payroll compared to a peak of \$1,544

AIA Conference Set

A CAB producing conference on whether to withdraw permanently American International Airways' letter of suspension at a non-scheduled operators is to be held in Washington on Nov. 25. The New York carrier opened the Boeing 314 flying boat which was forced down in mid-Atlantic last Oct. 14.

CAB SCHEDULE

Nov. 24. Practising on Board's second edition of Uniform Air Travel Plan approved. (Docket 2075.)

Nov. 24. Hearing on Caribbean-Atlantic Airlines mail sale case. (Docket 2113.)

Nov. 4. Oral argument on Railway Express-United Airlines arbitral award. (Docket 2145.)

Nov. 4. Hearing on PCA's application for administrative review from Chicago to Cleveland, Akron, Transporex and Pittsburgh. (Docket 2118 and 2189.)

Nov. 4. Hearing on 800 Connecticut application for arbitral review CIO New Orleans route. (Docket 2112.)

Nov. 18. Practising conference on New York and helicopter case. (Docket, but at 40.)

Nov. 5. Hearing on Board's presentation of consolidated application Trans-Appraiser. (Docket 2116.)

Nov. 4. Hearing on Vero & A. foreign air carrier permit renewal and amendment case. (Docket 2118 and 2123.)

New York Helicopter Mail Case Scheduled

Helicopter mail service in the New York area will move an important step toward achievement Dec. 10 when CAB is slated to hold a rehearing conference on route applications filed by its companies.

The Post Office Department, which already has licensed helicopter mail service in Los Angeles and Chicago, will favor certification of a New York operation. Its test last January was held between Long Beach Field and New York, New Jersey and Connecticut points.

Regularly-scheduled helicopter mail service in the Los Angeles area began in October, and CAB already has held hearings on applications for Chicago service. The Post Office Department does not plan to back certified helicopter mail operations in cities other than Los Angeles, Chicago and New York until the value of these routes service has been proved.

Applicants for New York area routes are New York Helicopter Corp., Air Commuting, Inc., Island Air Frigate, Inc., Helicopter Air Transport, Inc., Atlantic Coastal Airlines, Inc., and Albany Post New York Transit Co.

TWA Earns \$884,124 During Third Quarter

After recording a first quarter loss of \$5,721,523 and second quarter earnings of \$281,696, TWA boasted its net profit on common domestic operations in \$884,124 in the third month ended Sept. 30.

Highlighting the report was TWA's announcement that net profit on domestic operations alone during September was \$967,148, highest monthly earnings in company history. Earnings from overseas routes brought total profit to September to \$603,131.

Continued reductions in overhead expenses, closer consolidation of domestic and domestic operations, and increased passenger miles flown were credited by TWA for the company's significant showing. The company predicted overseas traffic will continue at a high level throughout the winter.

Total operating revenue increased from \$7,954,476 in July to \$8,068,299 in September, while operating expenses decreased from \$7,458,716 (July) to \$7,155. Revenue passenger miles increased from 98,798,000 in July to 112,977,000 in August and 111,124,000 in September. Systemwide load factor climbed from 63.65 percent in July to 72.32 in August and 75.75 in September.

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LETTERS

(The editor, as a mild-mannered trip, turns over his editorial page today to opinions expressed by his readers)

2 Stall Philosophies

To the Editor:

We were much interested in your editorial Nov. 10 titled "Wala Gy! Bunch Stalls." However, we do have some comments on an earlier article, "Wala Gy! Bunch Stalls."

This is an reference to the article in your Sept. 15 issue, "Stall Warning: Cock Seats Through New Design Data." With the stall indication that instrument sticks are moving nearly half the distance in personal flying, the situation of the stall is actually less considered one of the most important goals of aircraft engineers. Two divergent approaches are developing to work the solution of this problem, with two corresponding schools of thought in the last method of analyzing this point.

The approach which your article highlights is designed as simple as which it is applicable for the pilot to stall the engine. Several light language aircraft have been placed on the market which, by virtue of increased reliability and elevator upstroke have achieved a "characteristic insensitivity of response."

The other school of thought functions on the theory that, if a pilot is warned sufficiently of an impending stall, he will surely be able to take corrective measures in sufficient time to avoid disaster. It might be the author's opinion that the latter theory will require the ability of an instrument to give a stall warning that, even when warned, the corresponding actions might not produce corrective action in sufficient time.

In either case there are problems, compromise and limitations. Your article points out for the author that certain problems connected with restricted upstroke of the elevators still remain to be solved when a pilot plane is confronted, with its resultant stall, at a time when, when flying in stall, which create a forward pitching moment. The net result is that an aircraft which is in a stall position will have a loss of lift, power setting and other factors that an otherwise high gliding speed is necessary.

The next article also points out an advantage claimed for restricted control on planes which, experience has proved, has resulted in many divergent landing gear. The article says that "increased control also drastically increases the lift required to prevent a landing failure as the stick is pulled all the way back and held there as the airplane glides down to contact the ground." We might add, "and the pilot must not intend a new landing gear."

We are not going to make an effort to produce a full-proof, fool-proof solution but we wonder if the solution particularly to our immediate safety problem doesn't lie in the form of more adequate stall warning indication which will give the pilot early

quite general warning under any condition, and which does not require any unidirectional direction of the plane. This means logical to assume when it is indicated that virtually every stall accident comes out of an uncontrolled condition of steep turn at excessive altitudes under which conditions the warning should come early and consistently before the stall itself occurs.

Stall warning indicators are now being produced. One instrument, the Safe Flight Stall Warning Indicator, gives warning at speeds of 100% above stall speed, in profiles of attitude or condition of wing loading. It is significant that this stall warning indicator, as a matter of fact, is now being used very highly by at least one large aircraft company for use on certain transport airplanes.

The technique involved in making one of a stall warning device is extremely simple. Since it is impossible to stall or spin an airplane without back pressure on the stick, the pilot must only raise the pressure when the back goes off, thereby decreasing his wing loading sufficiently to stress his plane to safe flying conditions for the particular speed at the moment.

The significance of the development of an instrument which is not only recommended by leading insurance companies but recognized in the tangible form of reduced accident insurance rates, a stall warning that indicates the ability of an instrument to warn before the stall itself occurs is the assurance which the stall warning indicator is a new type. "Personal aircraft accident statistics from the stall now may be virtually eliminated by the simple installation of an 11 ounce instrument."

Louise M. Carver, President
11 Russell St., White Plains, N. Y.
Safe Flight Instrument Corp.

Another Stall Indicator

To the Editor:

We wish to comment on the article Nov. 10 concerning stall warning devices. Nov. 10 "Manufacturers of the new Stall Warning" we were somewhat shocked by your remark that the Safe Flight Indicator is "believed to be the only recognized stall warning device on the market."

The Stall Warning Indicator has two air flow detectors mounted near the trailing edge where they are not subject to wing and are operated by the stall strips of the stall and not by the stall strips of the wing itself. These detectors are sensitive to wing changes within two miles per hour. They are used in stall as a safety method or before normal wing and stick but is now permanently fastened to the wing with rivets in other parts of the wing.

The indicator is made of metal, removed from the line in less than one day and

back across for inspection and adjustment. If necessary, a detector can be removed and replaced on the base in about one minute. The detector keeps the feature that the electrical switching mechanism is a single enclosed and the entire unit is in the center of the wing where the wing section is symmetrical, so they might not be the wing where wing had been used, and the detector is only one inch wide, 12 inches high, 24 inches long, and weighs only two ounces. Due to its compact nature and location on the wing it is not subject to damage by fuel lines and wing rivets.

The stall warning indicator provided in the two wing detectors is duplicated by the cockpit indicator which gives both visual and audible warning. This indicator is provided with legs for good mounting on a bracket for mounting on the panel above the instrument panel. It is provided with a test switch to check the proper functioning of the stall warning when in normal flight and also with a switch which can be used to silence the buzzer without affecting the visual light while testing.

The Stall Warning has been used on over 1000 aircraft in the last two years, was tested and approved by the Civil Aeronautics Administration and is now undergoing testing by the Los Angeles engineering department at Dallas and the Educational Research Corp. at Cambridge Mass. Approved by several insurance companies at insurance.

It was submitted to CAA for approval but we were advised that the CAA is no longer too concerned since they deemed the approved products but last year. They have not set up the Technical Standard Order rating for Safety Standards, Section No. 251, and according to our latest information the TSO for stall warning has not yet been published. However, as Jan. 31 is the deadline for the Stall Warning, as an informed basis to A. L. Moore, acting chief of the Aircraft Development Division of the CAA operational station in Indianapolis.

COOPER T. AMERSON
Coastal Products Co.
P.O. Box 1, Chicago

AOPA Books Indicators

To the Editor:

We wanted your editorial "Wala Gy! Bunch Stalls" and want to comment upon it as a splendid thing, as we well know that the stall warning indicator will greatly aid in the number of fatal and serious accidents in private flying.

To this, we have had no record of an AOPA aircraft accident involving loss of a stall position where the stall warning indicators have been involved.

J. B. HARTMAN, Jr., Gen. Mgr.
Stall Warning Indicator Co., Inc.
Washington, D. C.

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That's how magnesium helps produce a more efficient fuselage for this high-speed aircraft. And that's why more and more manufacturers of aircraft and accessories are using more and more versatile magnesium.

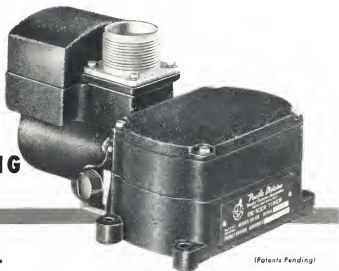


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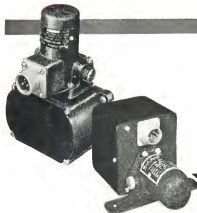
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